Updated USGS Aftershock Advisory for the Magnitude 7.8 Gorkha earthquake in Nepal April 25, 2015 (as of May 1, 2015)

Aftershocks are smaller earthquakes that occur following a larger event or "mainshock" in the same general area as the mainshock and during the following days-to-years.

The probability of aftershocks is lower than it was in our April 27th forecast because the number of aftershocks is decreasing faster than expected. The USGS forecasts the frequency or probability of earthquakes based on past earthquakes and the aftershocks recorded in Nepal.

There is no way to predict the exact date or time of an earthquake or aftershock.

The aftershocks are a normal occurrence after large earthquakes, and are expected to continue but occur less often with time. As is normal, there will continue to be many, felt aftershocks that do little or no damage. Some aftershocks may be strong enough to be felt widely throughout the area and may cause additional damage, particularly to vulnerable structures and those already weakened in the mainshock. Although aftershocks may occur less often, people should remain aware of the possibility of aftershocks in the coming weeks and months, especially when working in or around vulnerable structures or in landslide-prone areas.

- For the week of May 1 to May 7, the USGS estimates that aftershocks will continue, but at a decreased rate. There may be a small number (four or fewer) magnitude 5 or greater aftershocks.

- There is a smaller 14% chance of a magnitude 6 or greater aftershock and a much smaller 1% chance of a magnitude 7 or greater aftershock.

- The potential for an aftershock larger than the mainshock remains, but is much less than 1%. If an earthquake larger than the mainshock does occur, the USGS forecasts that it would most likely be about the size of the mainshock.

The USGS will update this advisory for future time periods on or before May 8, 2015.

This information is preliminary and subject to change.

For more information on the Gorkha earthquake, including updates to this forecast visit:
http://earthquake.usgs.gov/earthquakes/eventpage/us20002926

<u>Technical Appendix</u>: USGS Numerical Aftershock Forecast for the Magnitude 7.8 Gorkha earthquake in Nepal April 25, 2015 (as of May 1, 2015)

This numerical forecast presents the technical material used to create the "USGS Aftershock Advisory for the Magnitude 7.8 Gorkha earthquake in Nepal April 25, 2015 (as of May 1, 2015)" which focused on the forecast for the first week.

Method and Parameters:
This forecast is done with the method of Reasenberg and Jones (Science, 1989) using parameters fit to the first 5 days of the sequence. These parameters are a=-2.44, p=1.14, c=0.0155 days, and b=1. The range of expected number of aftershocks is calculated assuming a Poisson distribution and the true range is most likely larger than shown.

Numerical Forecast:

Forecast Time Window	Magnitude (M) range of aftershocks considered	Range of Expected Number of Aftershocks (95% confidence)	Probability of one or more aftershocks
1 Week starting on May 01, 2015 to the end of May 07, 2015	M ≥ 5.0	0 - 4	78%
	M ≥ 6.0	0 - 1	14%
	M ≥ 7.0	0 - 0	1%
	M ≥ 7.8	0 - 0	0.2%
1 Month starting on May 01, 2015 to the end of May 31, 2015	M ≥ 5.0	0 - 7	83%
	M ≥ 6.0	0 - 2	16%
	M ≥ 7.0	0 - 1	2%
	M ≥ 7.8	0 - 0	0.3%
1 Year starting at May 01, 2015 to the end of April 30, 2016	M ≥ 5.0	2 - 11	93%
	M ≥ 6.0	0 - 2	24%
	M ≥ 7.0	0 - 1	3%
	M ≥ 7.8	0 - 0	0.4%

In comparison, prior to the recent M7.8 mainshock, this region has experienced about 1 magnitude 5 or greater earthquake per year over the last 20 years.

The expected location of the aftershocks will be in the zone of current activity and at its edges with a few located further away. Currently almost all aftershocks are occurring in a zone extending approximately 200 km away from the mainshock epicenter with a few occurring up to 400 km to the east and southeast.

This information is preliminary and subject to change as more data becomes available. This forecast will be updated on or before May 8, 2015.For the most current info please check: http://earthquake.usgs.gov/earthquakes/eventpage/us20002926.